Intermediate Microeconomics

Chapter 13
Monopoly

Non-competitive market

- *Price maker* = economic decision maker that recognizes that its quantity choice has an influence on the price at which it buys or sells a good
- *Market power* = another name for the firm's ability to influence price
- Remember that First Welfare Theorem required competitive markets – is the allocation with price making agents still Pareto efficient?

Assumptions and market structure

1. Sellers are price-makers
   - we will assume only one seller – *monopoly* – no close substitute for its product
2. Sellers do not behave strategically
   - since there is only one seller, this is not really needed (required in a general price-making framework)
3. Entry into the industry is completely blocked
   - legal or technological barriers
4. Buyers are price takers
   - completely informed about price and alternatives

The two profit-maximizing rules

- *Marginal output rule* = if the firm does not shut down, it should produce output at the level where marginal revenue is equal to marginal cost
- *Shut-down rule* = if for every choice of output level the firm's average revenue is lower than its average (economic) cost, then the firm should shut down
- The question is: what are marginal revenue and average revenue in the case of a monopolist?

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Marginal revenue

- For a price-taking firm, marginal revenue equaled the market price
- In the case of a monopolist, the price depends on the quantity produced (downward-sloping demand curve)
- Hence, the monopolist marginal revenue is different from the price – in fact, it is *lower* than the price
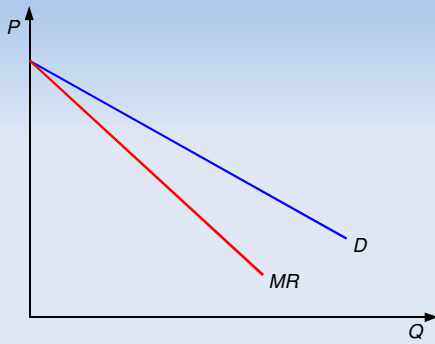
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Revenue effects of output increase

Marginal revenue: MR = B − A
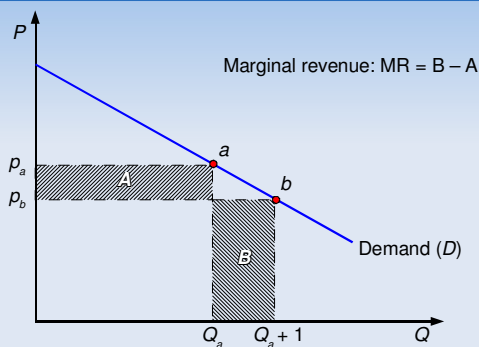
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Marginal revenue curve

P (vertical axis)
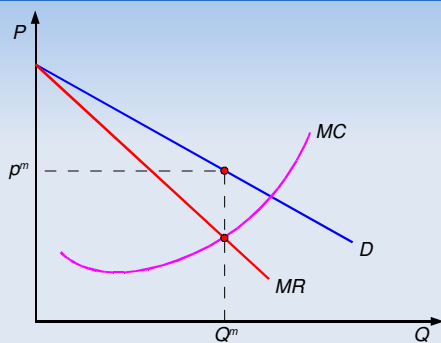
D

MR

Q (horizontal axis)

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Marginal revenue

- We can calculate the marginal revenue as a function of the elasticity of demand:

$$MR = p\left(1 - \frac{1}{\epsilon}\right)$$

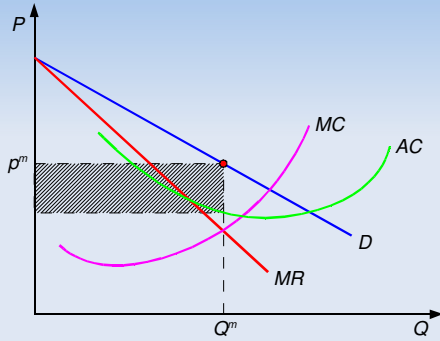- Note that if we have a competitive market (perfectly elastic demand, $\epsilon = \infty$), then $MR = p$

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Equilibrium output and price

P (vertical axis)

MC

p^m

D

MR

Q^m

Q (horizontal axis)

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Equilibrium output and price

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Equilibrium

- Since MR curve is below demand curve, the monopolist charges a price *higher* than marginal cost (compare to competitive market!)
- The monopolist does not charge the highest price it could – just the profit-maximizing level
- We don't need to make the distinction between long and short run (remember: the difference was in terms of market entry)
- Finally: the output produced is *lower* than in the perfectly competitive case

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Efficiency: partial equilibrium

- Remember that total surplus is at its maximum in competitive equilibrium
- What can we say about monopoly?
  - monopolist takes only its own producer surplus into account (private incentives)
  - competitive market considers both consumer and producer surplus (social incentives)
- *Deadweight loss of monopoly* = loss in total surplus that arises because a monopolist produces a less than the total-surplus-maximizing amount of output
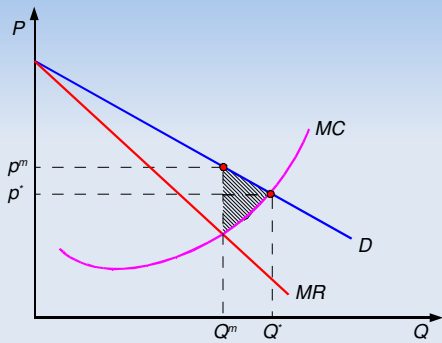
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Total surplus
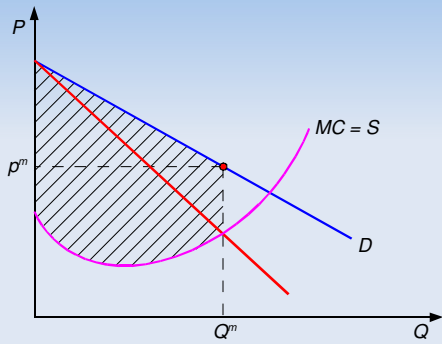
Deadweight loss

Efficiency: general equilibrium

- Production efficiency (best use of resources):
  - Monopolist is price-taker in input markets ⇒ sets MRTS = ratio of input prices (same as other firms)
- Consumption efficiency ("tangency of ICs"):
  - every consumer has the same MRS between the monpolist's good and any other good), as they face the same prices
- Allocation efficiency:
  - ratio of prices of any two goods should be equal to ratio of marginal costs – not satisfied by monopolist (produces too little output, MC is lower)

Public policy toward monopoly

- Monopolies are inefficient ⇒ governments try to regulate them:
  - patent policy (partial monopoly, but incentives to innovate)
  - antitrust policy = set of laws designed to prevent firms from exercising market power by the firms' restricting output and engaging in other anticompetitive behavior

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Determinants of monopoly

- *Natural monopoly* (economies of scale) = industry in which, over the range of relevant output levels, a single firm can produce the total industry output at less cost than can any greater number of firms
- Barriers to entry (technological and legal)
- Product differentiation (each producer is a monopoly) – e.g., brand names
- ⇒ It may be prohibitively costly, or even impossible, to create a competitive market structure in some industries

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Price discrimination

- *Price discrimination* = practice of charging consumers different prices for the same goods
- Conditions necessary for profitable price discrimination:
  1. firm must be a price maker
  2. firm must be able to identify which consumer is which
  3. consumers must not be able to engage in arbitrage
- *Arbitrage* = process whereby customers whom the firm charges low prices make purchases that they then resell to customers who would otherwise have to pay high prices

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First-degree price discrimination

- *First-degree* (*or perfect*) *price discrimination* = practice of selling each unit of output at a price just equal to the buyer's maximal willingness to pay for that unit
- This also means selling different units to the *same* consumer for different prices ⇒ the marginal revenue and demand curves coincide
- The monopolist will produce output up to the point at which the price of the last unit sold is equal to marginal cost ⇒ same level of output as a price-taker!

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First-degree price discrimination: Welfare effects

- The perfectly discriminating monopolist produces output at the same level as a price-taking firm ⇒ this maximizes total surplus
- However, the distribution of the surplus is different:
  - consumer surplus = 0
  - producer surplus = total surplus
- ⇒ equity concerns?

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Second-degree price discrimination

- *Second-degree price discrimination* = the same price schedule is offered to all buyers, but they sort themselves through self-selection
- This can be implemented with a *two-part tariff*:
  - a fixed fee F for the right to buy the product
  - a unit price p for each unit of the product sold
- Example: Costco
- If only one type of consumer, then $F = CS$ and $p = MC$ (again the "perfect competition" level of output)

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Third-degree price discrimination

- *Third-degree price discrimination* = practice of identifying separate groups of buyers of a good and charging different prices to these groups
- This separation is based on certain observed characteristics (e.g., age, sex, etc.) $\Rightarrow$ different from first-degree discrimination because the firm cannot extract all the consumer surplus
- Example: senior prices for movie tickets

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